L Number	Hits	Search Text	DB	Time stamp
1	1253	glycosyltransferase$5	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:17
-	556	glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:18
13	167	(glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 11:52
19	45	(glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and (glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:09
25	40	((glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain) and (glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:12
31	137	glycosyltransferase$5.clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:07
37	177	glycosyltransferase$5.clm. or (((glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain) and (glioma or meningioma))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:09
43	1	glycosyltransferase$5.clm. and (glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:16
49	4	(((glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain) and (glioma or meningioma)).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:13
67	385	(glioma or meningioma).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:15
85	18	glycosyltransferase$5.clm. and (brain or glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:18
91	13	moskal NEAR joseph	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:19
101	8	(US-6121233-$ or US-6440676-$ or US-6874314-$ or US-6194158-$).did. or (US-20020197695-$ or US-20020128221-$).did. or (WO-9743306-$).did. or (WO-9924584-$).did.	USPAT; US-PGPUB; EPO; DERWENT	2003/02/21 12:24

(FILE 'HOME' ENTERED AT 11:25:00 ON 21 FEB 2003)

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED
AT 11:25:09 ON 21 FEB 2003
L1 9751 S GLYCOSYLTRANS?
L2 1309 S L1 AND (CANCER OR NEOPLAS? OR TUMOR OR TUMOUR)
L3 86 S L2 AND BRAIN?
L4 25 S L3 AND (GLIO? OR MEN?)
L5 17 DUP REM L4 (8 DUPLICATES REMOVED)
L6 17 SORT L5 PY
L7 3373 S L1 AND ALPHA?
L8 2402 S ALPHA? (L) GLYCOSYLTRANS?
L9 155 S L8 AND (BRAIN OR GLIOMA? OR MENIN?)
L10 82 DUP REM L9 (73 DUPLICATES REMOVED)
L11 82 FOCUS L10 1-
L12 7 S L8 AND (GENE THER?)
L13 6 DUP REM L12 (1 DUPLICATE REMOVED)
L14 6 SORT L13 PY
E MOSKAL J?/AU
L15 54 S E10
L16 52 DUP REM L15 (2 DUPLICATES REMOVED)
L17 6 S L16 AND L1
L18 6 SORT L17 PY

=> d an ti so au ab pi l18 1-6

L18 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2003 ACS
AN 1975:55748 CAPLUS
DN 82:55748
TI Changes in glycolipid **glycosyltransferases** and glutamate decarboxylase and their relation to differentiation in neuroblastoma cells
SO Biochemical and Biophysical Research Communications (1974), 61(2), 751-8
CODEN: BBRCA9; ISSN: 0006-291X
AU **Moskal, Joseph R.**; Gardner, David A.; Basu, Subhash
AB Glycolipid **glycosyltransferase** activities involved in the biosynthesis in vitro of neutral and acidic glycosphingolipids were measured in C-1300 tumors and cloned cells derived therefrom. An adrenergic clone (NIE-115) was grown in tissue culture in the presence of dibutyryl cyclic AMP and the levels of **glycosyltransferases** were measured before and after differentiation. Increased activities of galactosyltransferases and sialyltransferases with a concomitant increase in glutamate decarboxylase activity (the enzyme that catalyzes the synthesis of an inhibitory neurotransmitter, .gamma.-aminobutyyic acid) were obsd.

L18 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2003 ACS
AN 1974:567421 CAPLUS
DN 81:167421
TI Biosynthesis of globoside and Forssman-related glycosphingolipid in mouse adrenal Y-1 tumor cells
SO Biochemical and Biophysical Research Communications (1974), 59(1), 252-60
CODEN: BBRCA9; ISSN: 0006-291X
AU Yeung, Kwok-Kam; **Moskal, Joseph R.**; Chien, Jo-Long; Gardner, David A.; Basu, Subhash
AB The activities of 4 glycolipid **glycosyltransferases** involved in the biosynthesis in vitro of globoside and Forssman hapten were measured in normal mouse adrenal tissue, Y-1 mouse adrenal tumor cells, and tumors derived therefrom. These enzyme activities, found in Golgi-rich membranes isolated on a sucrose d. gradient, were higher in the tumor cell cultures than in normal mouse adrenal tissue. The ratio between long-chain oligoglycosylceramides and short chain glycosphingolipids was higher in the case of Y-1-K cells treated with dibutyryl cAMP than in concanavalin A, colchicine treated, or untreated control cells in culture.

L18 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS
AN 1980:468185 CAPLUS
DN 93:68185
TI Regulation of glycoconjugate metabolism in normal and transformed cells
SO ACS Symposium Series (1980), 128(Cell Surf. Glycolipids), 241-63

CODEN: ACSMC8; ISSN: 0097-6156

AU **Moskal, Joseph R.**; Lockney, Michael W.; Marvel, Christopher C.; Mason, Peggy A.; Sweeley, Charles C.; Warren, Stephen T.; Trosko, James E.

AB In cultures of human epidermal carcinoma (KB) cells and virally transformed cells, some aspects of glycoconjugate metab. were significantly affected by 12-O-tetradecanoylphorbol 13-acetate (I) and retinoic acid. The change in sialyltransferase activities by these compds. was significant and was reflected by an increase in ganglioside GM3 in KB cells. The galactosyltransferase activity changes involved in glycoprotein anabolism were also significantly altered, and it appeared that the tumor promoter I and the anti-tumor promoter retinoic acid induced changes in **glycosyltransferase** activities by sep. mechanisms.

L18 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2003 ACS

AN 1987:188547 CAPLUS

DN 106:188547

TI Effect of retinoic acid and phorbol-12-myristate-13-acetate on **glycosyltransferase** activities in normal and transformed cells

SO Cancer Research (1987), 47(3), 787-90
CODEN: CNREA8; ISSN: 0008-5472

AU **Moskal, Joseph R.**; Lockney, Michael W.; Marvel, Christopher C.; Trosko, James E.; Sweeley, Charles C.

AB Retinoic acid [302-79-4] was found to increase the activity of cytidine monophosphosialic acid:lactosylceramide sialyltransferase [55071-95-9] activity in a nontransformed clonal hamster cell line, NIL 8, and a virally transformed clone, NIL 8-HSV. The potent tumor promoter phorbol-12-myristate-13-acetate (PMA) [16561-29-8] had no significant effect on sialyltransferase activity in NIL 8 cells but stimulated this activity almost 6-fold when added to NIL 8-HSV cells. There was a synergistically additive effect on sialyltransferase activity when PMA was added to NIL 8 cells in concert with retinoic acid. On the other hand neither PMA nor retinoic acid had an appreciable effect on 2 other **glycosyltransferases** measured, uridine diphospho-N-acetylgalactosamine:globotriaosylceramide N-acetylgalactosaminyltransferase [62213-46-1] and uridine diphosphogalactose:asialogalactofetuin galactosyltransferase [37228-68-5]. Examn. of sialyltransferase activity in a human epidermoid carcinoma cell line showed a large increase in enzyme activity in response to retinoic acid administration. Two nontransformed hamster cell lines had less basal sialyltransferase activity but also showed marked elevations after retinoic acid treatment. Thus, one of the mol. mechanisms underlying the biol. effects of retinoic acid and PMA may be an increase in sialyltransferase activity. Possible regulatory mechanisms are discussed.

L18 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2003 ACS

AN 1997:348708 CAPLUS

DN 127:60271

TI .alpha.2,6-Sialyltransferase gene transfection into a human glioma cell line (U373 MG) results in decreased invasivity

SO Journal of Neurochemistry (1997), 68(6), 2566-2576
CODEN: JONRA9; ISSN: 0022-3042

AU Yamamoto, Hirotaka; Kaneko, Yoichi; Rebba, Abdelhadi; Bremer, Eric G.; **Moskal, Joseph R.**

AB **Glycosyltransferase** gene transfection into cell lines has been an approach used successfully to elucidate the functional role of cell surface glycoconjugates. The authors have transfected the rat CMP-NeuAc:Gal.beta.1,4GlcNAc .alpha.2,6-sialyltransferase (EC 2.4.99.1) gene into a human, tumorigenic, glioma cell line, U373 MG. This transfection led to a marked inhibition of invasivity, alterations in adhesivity to fibronectin and collagen matrixes, and inappropriately sialylated .alpha.3/.beta.1 integrin. Adhesion-mediated protein tyrosine phosphorylation was reduced in the transfectants despite increased expression of focal adhesion kinase, p125fak. Furthermore, the transfectants showed a distinct cell morphol., an increased no. of focal adhesion sites, and different sensitivity to cytochalasin D treatment than control U373 MG cells. These results suggest that inappropriate sialylation of cell surface glycoconjugates, such as integrins, can change focal adhesion as well as adhesion-mediated signal transduction and block glioma cell invasivity in vitro.

L18 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS
AN 1999:326058 CAPLUS
DN 130:336451
TI Gene therapy of tumors of the brain using genes for sialyltransferases
SO PCT Int. Appl., 84 pp.
CODEN: PIXXD2
IN **Moskal, Joseph R.**; Yamamoto, Hirotaka
AB Methods of treating tumors of the brain by gene therapy with **glycosyltransferase**, specifically sialyltransferase, genes are described. Specifically, glioblastomas are treated. The gene for .alpha.2-3 sialyltransferase was not normally expressed in mature astrocytes but was found in fetal astrocytes. The protein was found in vascular endothelial cells of normal human brain. Glial cells express the gene for .alpha.2-6 sialyltransferase at higher levels than do glioma cells. Human glioma cell lines expressing a rat .alpha.2-6 sialyltransferase cDNA showed decreased invasiveness using an in vitro invasiveness test and lowered tumorigenicity in vivo. These cells also showed lower adhesion to fibronectin and collagen type I without patterns of integrin biosynthesis being affected but with qual. changes in patterns of protein tyrosine phosphorylation and induction of focal adhesion kinase gene expression. Development of a replication-incompetent adenovirus expression vector for therapeutic use is described.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9924584	A1	19990520	WO 1998-US24224	19981112
AU 9915859	A1	19990531	AU 1999-15859	19981112

PI WO 9924584
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

=>

```
(FILE 'HOME' ENTERED AT 11:25:00 ON 21 FEB 2003)

     FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED
     AT 11:25:09 ON 21 FEB 2003
L1          9751 S GLYCOSYLTRANS?
L2          1309 S L1 AND (CANCER OR NEOPLAS? OR TUMOR OR TUMOUR)
L3            65 S L2 AND BRAIN?
L4            25 S L3 AND (GLIO? OR MEN?)
L5            17 DUP REM L4 (8 DUPLICATES REMOVED)
L6            17 SORT L5 PY
L7          3373 S L1 AND ALPHA?
L8          2400 S ALPHA? (L) GLYCOSYLTRANS?
L9           155 S L8 AND (BRAIN OR GLIOMA? OR MENIN?)
L10           82 DUP REM L9 (73 DUPLICATES REMOVED)
L11           82 FOCUS L10 1-
L12            7 S L8 AND (GENE THER?)
L13            6 DUP REM L12 (1 DUPLICATE REMOVED)
L14            6 SORT L13 PY

=> d an ti sc au ab pi l14 1 2 3 6

L14  ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2003 ACS
AN   1997:684503  CAPLUS
DN   127:345321
TI   Inducing immunological rejection of tumor cells by introduction of a gene
     for a glycosyltransferase
SO   PCT Int. Appl., 18 pp.
     CODEN: PIXXD2
IN   Power, David Anthony; Kemp, Bruce Ernest
AB   A method of inducing an immune response against human tumor cells which
     can be used therapeutically is described. The method involves introducing
     an expression construct for a glycosyltransferase into the tumor
     cells with the resulting synthesis of antigenic carbohydrate epitopes such
     as gal(.alpha.1,3)gal on the surface of the tumor cells. The
     glycosyltransferase may be a .alpha.-1,3
     galactosyltransferase, a .alpha.-N-acetyl-D-
     galactosaminyltransferase or a .alpha.-D-galactosyltransferase.
     A431 cells were transformed with a pcDNA3 vector carrying a cDNA for the
     swine .alpha.-1,3-galactosyltransferase and selected for the
     presence of the gal(.alpha.1,3)gal epitope on the cells by
     lectin binding. These cells presented CD55 on their surface and there was
     no significant complement-mediated lysis except in the presence of CD55
     blocking antibody.
     PATENT NO.          KIND  DATE          APPLICATION NO.  DATE
     ----------          ----  --------      ---------------  --------
PI   WO 9738109          A1    19971016      WO 1997-AU214    19970403
         W: AU, CA, JP, US
         RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
     AU 9721454          A1    19971029      AU 1997-21454    19970403

L14  ANSWER 2 OF 6  CAPLUS  COPYRIGHT 2003 ACS
AN   1997:348708  CAPLUS
DN   127:60271
TI   .alpha.2,6-Sialyltransferase gene transfection into a human glioma cell
     line (U373 MG) results in decreased invasivity
SO   Journal of Neurochemistry (1997), 68(6), 2566-2576
     CODEN: JONRA9; ISSN: 0022-3042
AU   Yamamoto, Hirotaka; Kaneko, Yoichi; Rebba, Abdelhadi; Bremer, Eric G.;
     Moskal, Joseph R.
AB   Glycosyltransferase gene transfection into cell lines has been
     an approach used successfully to elucidate the functional role of cell
     surface glycoconjugates. The authors have transfected the rat
     CMP-NeuAc:Gal.beta.1,4GlcNAc .alpha.2,6-sialyltransferase (EC
     2.4.99.1) gene into a human, tumorigenic, glioma cell line, U373 MG. This
     transfection led to a marked inhibition of invasivity, alterations in
     adhesivity to fibronectin and collagen matrixes, and inappropriately
     sialylated .alpha.3/.beta.1 integrin. Adhesion-mediated protein
     tyrosine phosphorylation was reduced in the transfectants despite
     increased expression of focal adhesion kinase, p125fak. Furthermore, the
     transfectants showed a distinct cell morphol., an increased no. of focal
```

adhesion sites, and different sensitivity to cytochalasin D treatment than control U373 MG cells. These results suggest that inappropriate sialylation of cell surface glycoconjugates, such as integrins, can change focal adhesion as well as adhesion-mediated signal transduction and block glioma cell invasivity in vitro.

L14 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS
AN 1999:326058 CAPLUS
DN 130:336451
TI **Gene therapy** of tumors of the brain using genes for sialyltransferases
SO PCT Int. Appl., 84 pp.
CODEN: PIXXD2
IN Moskal, Joseph R.; Yamamoto, Hirotaka
AB Methods of treating tumors of the brain by **gene therapy** with **glycosyltransferase**, specifically sialyltransferase, genes are described. Specifically, glioblastomas are treated. The gene for .**alpha**.2-3 sialyltransferase was not normally expressed in mature astrocytes but was found in fetal astrocytes. The protein was found in vascular endothelial cells of normal human brain. Glial cells express the gene for .**alpha**.2-6 sialyltransferase at higher levels than do glioma cells. Human glioma cell lines expressing a rat .**alpha** .2-6 sialyltransferase cDNA showed decreased invasiveness using an in vitro invasiveness test and lowered tumorigenicity in vivo. These cells also showed lower adhesion to fibronectin and collagen type I without patterns of integrin biosynthesis being affected but with qual. changes in patterns of protein tyrosine phosphorylation and induction of focal adhesion kinase gene expression. Development of a replication-incompetent adenovirus expression vector for therapeutic use is described.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9924564	A1	19990520	WO 1998-US24224	19981112

PI WO 9924564 A1 19990520
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
AU 9915859 A1 19990531 AU 1999-15859 19981112

L14 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS
AN 2002:408808 CAPLUS
DN 137:697
TI Glycosyltransferase sequences and adenoviral vector comprising tumor-specific promoter and glycosyltransferase for cancer therapy
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
IN Schiff, Michael J.
AB This disclosure provides a system for specifically killing cancer cells which can be used in the course of human therapy. Vectors of the invention comprises an encoding sequence for a **glycosyltransferase** , under control of a tumor or tissue specific transcriptional control element, such as the promoter for telomerase reverse transcriptase. Exemplary **glycosyltransferases** are the A or B transferase enzymes, which cause the cancer cells to express ABO histo blood group allotypes or a cell-surface carbohydrate determinant against which humans have naturally antibody. This provides for ongoing surveillance for newly emerging cells with a malignant phenotype. The invention provides sequences of human Blood-group B **glycosyltransferase** and Blood-group A **glycosyltransferase**, and marmoset and synthetic .**alpha**.-1,3-Galactosyltransferase.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002042468	A2	20020530	WO 2001-US44306	20011126
WO 2002042468	A3	20021121		

PI WO 2002042468 A2 20020530
WO 2002042468 A3 20021121
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2002035141	A5	20020603	AU 2002-35141	20011126	
US 2002128221	A1	20020912	US 2001-994427	20011126	
US 2003032187	A1	20030213	US 2001-995419	20011126	
GB 2374076	A1	20021009	GB 2001-28409	20011127	

L11 ANSWER 3 OF 82 CAPLUS COPYRIGHT 2003 ACS
AN 1999:326058 CAPLUS
DN 130:356451
TI Gene therapy of tumors of the **brain** using genes for sialyltransferases
SO PCT Int. Appl., 84 pp.
CODEN: PIXXD2
IN Moskal, Joseph R.; Yamamoto, Hirotaka
AB Methods of treating tumors of the **brain** by gene therapy with **glycosyltransferase**, specifically sialyltransferase, genes are described. Specifically, glioblastomas are treated. The gene for .**alpha**.2-3 sialyltransferase was not normally expressed in mature astrocytes but was found in fetal astrocytes. The protein was found in vascular endothelial cells of normal human **brain**. Glial cells express the gene for .**alpha**.2-6 sialyltransferase at higher levels than do **glioma** cells. Human **glioma** cell lines expressing a rat .**alpha**.2-6 sialyltransferase cDNA showed decreased invasiveness using an in vitro invasiveness test and lowered tumorigenicity in vivo. These cells also showed lower adhesion to fibronectin and collagen type I without patterns of integrin biosynthesis being affected but with qual changes in patterns of protein tyrosine phosphorylation and induction of focal adhesion kinase gene expression. Development of a replication-incompetent adenovirus expression vector for therapeutic use is described.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9924584	A1	19990520	WO 1998-US24224	19981112
AU 9915859	A1	19990531	AU 1999-15859	19981112

PI WO 9924584
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

L11 ANSWER 5 OF 82 CANCERLIT
AN 96653457 CANCERLIT
TI Galbeta1,4GlcNAc alpha2,6 sialyltransferase (alpha2,6-ST) gene transfection alters the integrin-mediated invasivity of the human **glioma** cell line U-373MG (Meeting abstract).
SO Proc Annu Meet Am Assoc Cancer Res, (1996) 37 A436.
ISSN: 0197-016X.
AU Yamamoto H; Kaneko Y; Rebbaa A; Kersey D; Bremer E; Moskal J
AB The invasion of malignant **glioma** cells into normal **brain** tissue is a major cause of morbidity and death for **brain** tumor patients. Increases in cell-surface sialoglycoconjugates play an important role in carcinogenesis. We have examined the expression of **alpha2**,3-sialyltransferase (**alpha2**,3-ST) and **alpha2**,6-sialyltransferase (**alpha2**,6-ST) in human **brain** tumor specimens and found that the terminal sialylation of N-linked glycoproteins in **gliomas** appears to be mediated by **alpha2**,3-ST. We have altered the terminal sialylation of a tumorigenic human **glioma** cell line, U-373MG, by **alpha2**,6-ST gene transfection. The transfected **glioma** cells express **alpha2**,6-ST and **alpha2**,6-linked sialoglycoproteins on their cell surfaces and show a marked reduction in **alpha3beta1** integrin-mediated adhesion to extracellular matrix proteins and in vitro invasiveness compared to controls. Furthermore, the **alpha2**,6-ST transfection results in a reduction of adhesion-mediated protein tyrosine phosphorylation despite a marked induction of the integrin-mediated signaling molecule, focal adhesion kinase, p125FAK. Thus, changes in the terminal sialylation can have a marked effect on **alpha3beta1** integrin-mediated **glioma** invasivity and suggest an approach to alter the invasivity of **glioma** cells by **glycosyltransferase** gene transfections.

FILE 'HOME' ENTERED AT 11:25:00 ON 21 FEB 2003

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED AT 11:25:09 ON 21 FEB 2003

L1 9751 S GLYCOSYLTRANS?
L2 1309 S L1 AND (CANCER OR NEOPLAS? OR TUMOR OR TUMOUR)
L3 85 S L2 AND BRAIN?
L4 25 S L3 AND (GLIO? OR MEN?)
L5 17 DUP REM L4 (8 DUPLICATES REMOVED)
L6 17 SORT L5 PY

=> d an ti so au ab pi 16 15 1 2 6 -10 16

L6 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1999:326058 CAPLUS
DN 130:336451
TI Gene therapy of **tumors** of the **brain** using genes for sialyltransferases
SO PCT Int. Appl., 84 pp.
CODEN: PIXXD2
IN Moskal, Joseph R.; Yamamoto, Hirotaka
AB Methods of treating **tumors** of the **brain** by gene therapy with **glycosyltransferase**, specifically sialyltransferase, genes are described. Specifically, **glioblastomas** are treated. The gene for .alpha.2-3 sialyltransferase was not normally expressed in mature astrocytes but was found in fetal astrocytes. The protein was found in vascular endothelial cells of normal human **brain**. Glial cells express the gene for .alpha.2-6 sialyltransferase at higher levels than do **glioma** cells. Human **glioma** cell lines expressing a rat .alpha.2-6 sialyltransferase cDNA showed decreased invasiveness using an in vitro invasiveness test and lowered tumorigenicity in vivo. These cells also showed lower adhesion to fibronectin and collagen type I without patterns of integrin biosynthesis being affected but with qual. changes in patterns of protein tyrosine phosphorylation and induction of focal adhesion kinase gene expression. Development of a replication-incompetent adenovirus expression vector for therapeutic use is described.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9924584	A1	19990520	WO 1998-US24224	19981112
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9915859	A1	19990531	AU 1999-15859	19981112

L6 ANSWER 1 OF 17 CANCERLIT
AN 79611410 CANCERLIT
TI SYNTHESIS OF GLYCOSPHINGOLIPIDS IN MOUSE GLIAL **TUMORS**.
SO J Neurochem, (1979) 32 (2) 637-641.
ISSN: 0022-3042.
AU Stoolmiller A C; Dawson G; Kemp S F; Schachner M
AB The glycosphingolipid composition of four independently derived mouse glial **tumors** was examined. The activity of two **glycosyltransferases** involved in ganglioside biosynthesis was measured. Mouse **glioblastoma tumor** nodules were removed from the peritoneal cavity of C57BL/65 mice inoculated 2-4 wk previously. The **tumor** nodules were freed from extraneous and necrotic tissues, washed with 10 mM phosphate buffered saline (pH 7.3) and stored at 70 C. **Glioblastoma** (Sato), **glioma** G 26, G 261 and ependymoblastoma were analyzed. In spite of the high specific activity of N-acetylgalactosaminyltransferase (which catalyzes the first step in the biosynthesis of hexosamine-containing gangliosides) in the **brain** and in the neuroblastoma, neither specimen from the **glioblastoma** (Sato) or **glioma** G 26 nor the ependymoblastoma tissue contained measurable levels of the

hexosaminyltransferase. Only a low level of N-acetylgalactosaminyltransferase was found in the G 261 **tumor**. The results of this study indicate that glycosphingolipid profiles and **glycosyltransferase** activities together with histological and immunological criteria will provide an effective means for the differential diagnosis of neural **tumors**. (51 Refs)

L6 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1979:100381 CAPLUS
DN 90:100381
TI Regulation of glycosphingolipid metabolism in mouse neuroblastoma and **glioma** cell lines. Comparison of **glioma** (oligodendroglioma-like) with neuroblastoma cell lines
SO Journal of Biological Chemistry (1979), 254(1), 155-62
CODEN: JBCHA3; ISSN: 0021-9258
AU Dawson, Glyn
AB Mouse neurotumor cell lines synthesized specific glycosphingolipids independently of the type of tissue culture conditions employed. Neuroblastoma cell lines synthesized mainly tetrahexosylceramide, GM2, GM1, and GD1a gangliosides; astrocytoma cell lines synthesized mainly GM3 gangliosides; and certain clonal cell lines derived from C57BL/6 mouse G26 **glioma tumor** synthesized sulfogalactosylceramide, a glycolipid not assocd. with neuroblastoma or astrocytoma cell lines, in addn to GM3 and other glycolipids. The neutral glycosphingolipid and sialoglycosphingolipid (ganglioside) compn. was simpler than that of neuroblastoma cell lines, but more complex than that of astrocytoma cell lines. The synthesis of sulfogalactosylceramide or sialoglycosphingolipids was not profoundly enhanced following morphol. differentiation caused by dibutyryl cyclic AMP or cholera toxin, or by co-culture with several neuroblastoma cell strains under normal or differentiating culture conditions. Similarly, undifferentiated neuroblastoma (NB41A) cells actually contained more complex gangliosides than differentiating cells. Thus, the G26 series of oligodendroglioma cells apparently have unique properties and will be useful for studying both the properties of immature oligodendroglial cells and the factors which stimulate both the synthesis of sulfogalactosylceramide and the process of myelination.

L6 ANSWER 6 OF 17 SCISEARCH COPYRIGHT 2003 ISI (R)
AN 94.331902 SCISEARCH
TI THE IDENTIFICATION OF **GLIOBLASTOMA**-ASSOCIATED, FUCOSE-CONTAINING GLYCOPROTEINS INDUCED BY RETINOIC ACID
SO MOLECULAR AND CHEMICAL NEUROPATHOLOGY, (FEB/APR 1994) Vol. 21, No. 2-3, pp. 311-327.
ISSN: 1044-7393.
AU VANDERMEULEN D L; PRASAD V V T S; MOSKAL J R (Reprint)
AB We have used a tumorigenic **glioblastoma** cell line, SNB-19, as a model system to identify fucose-containing glycoprotein candidates for **tumor** suppressor function. Glycoproteins were analyzed after treatment with a variety of chemical differentiating agents by two-dimensional SDS-PAGE, followed by electroblotting and visualization using the fucose-specific lectin, Ulex europeaus I. Approximately 25 fucose-containing glycoproteins (FUCGLAPs) were routinely visualized in control extracts using 60-70 mug of protein per gel and staining with Vectastain ABC kits. Retinoic acid induced the most marked change in FUCGLAP expression, causing a fivefold increase in one FUCGLAP (M(r) = 125 kDa, pI = 6.6). Neither butyric acid, dibutyryl cAMP, nor combinations of these compounds gave a similar result. Using this model system and analytical approach, it should be possible to identify, isolate, and evaluate glycoprotein oligosaccharides for their **tumor** modulating capability.

L6 ANSWER 1 OF 17 CANCERLIT
AN 79611410 CANCERLIT
TI SYNTHESIS OF GLYCOSPHINGOLIPIDS IN MOUSE GLIAL **TUMORS**.
SO J Neurochem, (1979) 32 (2) 637-641.
ISSN: 0022-3042.
AU Stoolmiller A C; Dawson G; Kemp S F; Schachner M
AB The glycosphingolipid composition of four independently derived mouse glial **tumors** was examined. The activity of two

glycosyltransferases involved in ganglioside biosynthesis was measured. Mouse **glioblastoma tumor** nodules were removed from the peritoneal cavity of C57BL/6S mice inoculated 2-4 wk previously. The **tumor** nodules were freed from extraneous and necrotic tissues, washed with 10 mM phosphate buffered saline (pH 7.3) and stored at 70 C. **Glioblastoma** (Sato), **glioma** G 26, G 261 and ependymoblastoma were analyzed. In spite of the high specific activity of N-acetylgalactosaminyltransferase (which catalyzes the first step in the biosynthesis of hexosamine-containing gangliosides) in the **brain** and in the neuroblastoma, neither specimen from the **glioblastoma** (Sato) or **glioma** G 26 nor the ependymoblastoma tissue contained measurable levels of the hexosaminyltransferase. Only a low level of N-acetylgalactosaminyltransferase was found in the G 261 **tumor**. The results of this study indicate that glycosphingolipid profiles and **glycosyltransferase** activities together with histological and immunological criteria will provide an effective means for the differential diagnosis of neural **tumors**. (51 Refs)

L6 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1979:100881 CAPLUS
DN 90:100881
TI Regulation of glycosphingolipid metabolism in mouse neuroblastoma and **glioma** cell lines. Comparison of **glioma** (oligodendroglioma-like) with neuroblastoma cell lines
SO Journal of Biological Chemistry (1979), 254(1), 155-62
CODEN: JBCHA3; ISSN: 0021-9258
AU Dawson, Glyn
AB Mouse neurotumor cell lines synthesized specific glycosphingolipids independently of the type of tissue culture conditions employed. Neuroblastoma cell lines synthesized mainly tetrahexosylceramide, GM2, GM1, and GD1a gangliosides; astrocytoma cell lines synthesized mainly GM3 gangliosides; and certain clonal cell lines derived from C57BL/6 mouse G26 **glioma tumor** synthesized sulfogalactosylceramide, a glycolipid not assocd. with neuroblastoma or astrocytoma cell lines, in addn. to GM3 and other glycolipids. The neutral glycosphingolipid and sialoglycosphingolipid (ganglioside) compn. was simpler than that of neuroblastoma cell lines, but more complex than that of astrocytoma cell lines. The synthesis of sulfogalactosylceramide or sialoglycosphingolipids was not profoundly enhanced following morphol. differentiation caused by dibutyryl cyclic AMP or cholera toxin, or by co-culture with several neuroblastoma cell strains under normal or differentiating culture conditions. Similarly, undifferentiated neuroblastoma (NB41A) cells actually contained more complex gangliosides than differentiating cells. Thus, the G26 series of oligodendroglioma cells apparently have unique properties and will be useful for studying both the properties of immature oligodendroglial cells and the factors which stimulate both the synthesis of sulfogalactosylceramide and the process of myelination.

L6 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1984:154399 CAPLUS
DN 100:154399
TI Neurite outgrowth of neuroblastoma cells: dependence on adhesion surface-cell surface interactions
SO Journal of Cell Biology (1984), 98(3), 1010-16
CODEN: JCLBA3; ISSN: 0021-9525
AU Rauvala, Heikki
AB Neurite outgrowth of C 1300 neuroblastoma cells, which were dispersed from adherent cultures or grown in suspension, was studied on different protein-coated surfaces. Of 29 different surface structures studied, including surfaces treated with various fibronectins, lectins, glycosidases, or **glycosyltransferases** capable of stimulating fibroblast spreading, only the surfaces coated with plasma fibronectin or with a protein mixt. secreted by C6 **glioma** cells displayed an extensive activity in the sprouting assay. Neurite outgrowth was inhibited by **brain** gangliosides and by colominic acid (a sialic acid polymer). A 50% inhibition of neurite outgrowth of N18 neuroblasts induced by the **glioma** cell proteins was obsd. at the following approx. concns.: 100 .mu.M (0.2 mg/mL) GD1a ganglioside, 20 .mu.M (0.04

mg/mL GT1b ganglioside, and 5 mg colominic acid/mL. Specificity of inhibition was suggested, for a few polyanionic substances tested were not inhibitory in the sprouting assay, and the gangliosides inhibiting sprouting resembled the major sialoglycolipid of the neuroblasts. Neurite outgrowth of neuroblasts may be stimulated by interactions of the adhesion-mediating protein with cell-surface carbohydrates characteristic of **brain** gangliosides.

L6 ANSWER 4 OF 17 MEDLINE
AN 91122414 MEDLINE
TI Effect of retinoic acid on two **glycosyltransferase** activities in C6 cultured **glioma** cells.
SO INTERNATIONAL JOURNAL OF BIOCHEMISTRY, (1990) 22 (8) 889-93.
Journal code: 0250365. ISSN: 0020-711X.
AU Reboul P; Broquet P; George P; Louisot P
AB 1. Activity of two **glycosyltransferases** was studied in retinoic acid-treated C6 cultured **glioma** cells. 2. The beta-galactoside alpha 2,3-sialyltransferase transferring N-acetylneuramin onto the O-glycans residues of glycoproteins was activated up to twice after chronic treatment (from 24 to 96 hr) with all-trans retinoic acid. 3. No effect was observed for shorter treatments. 4. On the opposite, the N-glycan galactosyltransferase activity remained unchanged whatever the length of retinoic acid treatment was. 5. The activatory effect was not dependent on isomery, as all-trans and 13-cis retinoic acid isomers were both activators of the C6 **glioma** cell sialyltransferase. 6. Measurement of adhesion of retinoic acid-treated cells using labelled plasma membranes showed an enhancement of adhesion in correlation with enhancement of sialyltransferase activity.

L6 ANSWER 5 OF 17 SCISEARCH COPYRIGHT 2003 ISI (R)
AN 91:607293 SCISEARCH
TI OCCURRENCE OF LACTO SERIES GANGLIOSIDES 3'-ISOLM1 AND 3',6'-ISOLD1 IN HUMAN **GLIOMAS** INVITRO AND INVIVO
SO JOURNAL OF NEUROPATHOLOGY AND EXPERIMENTAL NEUROLOGY, (1991) Vol. 50, No. 6, pp. 756-769.
AU WIKSTRAND C J; HE X M; FULLER G N; BIGNER S H (Reprint); FREDMAN P; SVENNERHOLM L; BIGNER D D
AB Monoclonal antibodies (MAb; DMAb, monoclonal antibodies derived at Duke Medical Center) directed against the oncofetally expressed lactotetraosyl gangliosides 3'-isoLM1 (IV3NeuAc-LcOse4Cer) and 3',6'-isoLD1 (IV3NeuAc,-III6NeuAc-LcOse4Cer) were produced and their reactivity spectra compared to that of the alpha-3'-isoLM1 MAb SL-50. The IgM MAb SL-50 defines the epitope NeuAc (or NeuGc)alpha-2-3Gal-beta-1-3GlcNAc, the terminal sequence of both gangliosides. SL-50 requires an unsubstituted GlcNAc residue; IgM DMAb-14 will accept the alpha-2-6 linked sialic acid to GlcNAc found in 3',6'-isoLD1. Immunohistochemical localization of 3'-isoLM1 was performed on 31 biopsy specimens of human **gliomas**; 15 (48%) expressed 3'-isoLM1 as defined by binding of MAb SL-50. Staining of small anaplastic cells, giant cells, and the glial component of **gliosarcomas** was observed. **Neoplastic** gemistocytes, when present, showed particularly intense staining. The 3'-isoLM1 and 3',6'-isoLD1 distribution in cultured cell lines and derived xenografts of primary **tumors** of the human central nervous system and of embryonal or neuroectodermal **tumor** derivation was determined. Six of 29 cell lines expressed 3'-isoLM1: 2/16 **gliomas**, 3/3 teratomas, 1/1 pancreatic adenocarcinoma. No cell line expressed detectable 3',6'-isoLD1 by immunostain analysis of ganglioside extracts. The 3'-isoLM1-positive cell lines expressed it in xenograft form; in five xenografts, the corresponding cell lines of which were 3'-isoLM1-negative, it was a proportion of the monosialoganglioside fraction. 3',6'-isoLD1 was detected in two xenografts, D-54 MG (**glioma**) and PA-1 (teratoma). The demonstration of 3'-isoLM1 in **gliomas** in in vivo forms and the relatively infrequent expression by derived cultured cells suggest that ganglioside expression is modified by environmental forces. Expression of 3'-isoLM1 and 3',6'-isoLD1 in fetal and neonatal **brain**, in intense reactive astrocytosis such as polyunsaturated fatty acid lipidosis, and in primary **neoplasms** of the central nervous system suggests their role in cell-cell attachment during development, migration, and **neoplastic** transformation.

L6 ANSWER 6 OF 17 SCISEARCH COPYRIGHT 2003 ISI (R)
AN 94:331902 SCISEARCH
TI THE IDENTIFICATION OF **GLIOBLASTOMA**-ASSOCIATED, FUCOSE-CONTAINING GLYCOPROTEINS INDUCED BY RETINOIC ACID
SO MOLECULAR AND CHEMICAL NEUROPATHOLOGY, (FEB/APR 1994) Vol. 21, No. 2-3, pp. 311-327.
ISSN: 1044-7393.
AU VANDERMEULEN D L; PRASAD V V T S; MOSKAL J R (Reprint)
AB We have used a tumorigenic **glioblastoma** cell line, SNB-19, as a model system to identify fucose-containing glycoprotein candidates for **tumor** suppressor function. Glycoproteins were analyzed after treatment with a variety of chemical differentiating agents by two-dimensional SDS-PAGE, followed by electroblotting and visualization using the fucose-specific lectin, Ulex europeaus I. Approximately 25 fucose-containing glycoproteins (FUCGLAPs) were routinely visualized in control extracts using 60-70 mug of protein per gel and staining with Vectastain ABC kits. Retinoic acid induced the most marked change in FUCGLAP expression, causing a fivefold increase in one FUCGLAP (M(r) = 125 kDa, pI = 5.6). Neither butyric acid, dibutyryl cAMP, nor combinations of these compounds gave a similar result. Using this model system and analytical approach, it should be possible to identify, isolate, and evaluate glycoprotein oligosaccharides for their **tumor** modulating capability.

L6 ANSWER 7 OF 17 MEDLINE
AN 96083965 MEDLINE
TI **Glycosyltransferase** activities in human **meningiomas**. Preliminary results.
SO CANCER BIOCHEMISTRY BIOPHYSICS, (1995 Jun) 15 (1) 1-10.
Journal code: 7506524. ISSN: 0305-7232.
AU Gornati R; Basu S; Montorfano G; Berra B
AB The biosynthesis of a given glycosphingolipid is under the control of specific **glycosyltransferases**, while its catabolism is catalyzed by step-wise action of glycosidases. The net amount of glycolipids apparently result from the difference between these two processes. However, other parameters should be taken into consideration, such as intracellular recycling of catabolic products, membrane insertion, and membrane turnover. In order to establish a possible correlation between ganglioside expression in **brain tumor** and the activities of the enzymes involved in their metabolism, we analyzed the activities of specific sialyltransferases (SAT-1 and SAT-2), galactosyltransferase (GalT-4), N-acetylgalactosaminyltransferase (GalNAcT-1), and N-acetylglucosaminyltransferase (GlcNAcT-1) in 9 human **meningiomas** whose ganglioside pattern was characterized either by the predominance ganglioside GM3 (4 out of 9) or ganglioside GD3 (5 out of 9). The results indicated a strong correlation between the GM3/GD3 ratio and SAT-2 activity; to the contrary, SAT-1 activity did not show any correlation if compared with the Lc2/GM3 ratio. In all the samples where GM3 was the main ganglioside, little or no activity of GalNAcT-1 and GlcNAcT-1 was detectable.

L6 ANSWER 8 OF 17 CANCERLIT
AN 96653457 CANCERLIT
TI Galbeta1,4GlcNAc alpha2,6 sialyltransferase (alpha2,6-ST) gene transfection alters the integrin-mediated invasivity of the human **glioma** cell line U-373MG (Meeting abstract).
SO Proc Annu Meet Am Assoc Cancer Res, (1996) 37 A436.
ISSN: 0197-016X.
AU Yamamoto H; Kaneko Y; Rebbaa A; Kersey D; Bremer E; Moskal J
AB The invasion of malignant **glioma** cells into normal **brain** tissue is a major cause of morbidity and death for **brain** **tumor** patients. Increases in cell-surface sialoglycoconjugates play an important role in carcinogenesis. We have examined the expression of alpha2,3-sialyltransferase (alpha2,3-ST) and alpha2,6-sialyltransferase (alpha2,6-ST) in human **brain tumor** specimens and found that the terminal sialylation of N-linked glycoproteins in **gliomas** appears to be mediated by alpha2,3-ST. We have altered the terminal sialylation of a tumorigenic human **glioma** cell line, U-373MG, by alpha2,6-ST gene transfection. The transfected **glioma** cells express alpha2,6-ST and alpha2,6-linked sialoglycoproteins on their cell

surfaces and show a marked reduction in alpha3beta1 integrin-mediated adhesion to extracellular matrix proteins and in vitro invasiveness compared to controls. Furthermore, the alpha2,6-ST transfection results in a reduction of adhesion-mediated protein tyrosine phosphorylation despite a marked induction of the integrin-mediated signaling molecule, focal adhesion kinase, p125FAK. Thus, changes in the terminal sialylation can have a marked effect on alpha3beta1 integrin-mediated **glioma** invasivity and suggest an approach to alter the invasivity of **glioma** cells by **glycosyltransferase** gene transfections.

L6 ANSWER 9 OF 17 SCISEARCH COPYRIGHT 2003 ISI (R)
AN 96:140952 SCISEARCH
TI THE EXPRESSION OF GAL-BETA-1,4GLCNAC ALPHA-2,6 SIALYLTRANSFERASE AND ALPHA-2,6-LINKED SIALOGLYCOCONJUGATES IN HUMAN **BRAIN-TUMORS**
SO ACTA NEUROPATHOLOGICA, (MAR 1996) Vol. 91, No. 3, pp. 284-292.
ISSN: 0001-6322.
AU KANEKO Y; YAMAMOTO H; KERSEY D S; COLLEY K J; LEESTMA J E; MOSKAL J R (Reprint)
AB CMP-NeuAc: Gal beta 1,4GlcNAc alpha 2,6 sialyltransferase (alpha 2,6-ST) [EC 2.4.99.1] is developmentally regulated, shows a high degree of tissue specificity, and appears to play a role in oncogenic transformation and metastasis. In the present study, we have performed the first detailed analysis of the expression of alpha 2,6-ST and alpha 2,6-linked sialoglycoconjugates in human **brain tumors**. We used a polyclonal, monospecific anti-rat alpha 2,6-ST antibody and the alpha 2,6-linked sialic acid-specific lectin, Sambucus nigra agglutinin (SNA) for histochemical studies, and a human alpha 2,6-ST-specific cDNA probe for Northern analysis. **Meningiomas**, chordomas and craniopharyngiomas frequently expressed alpha 2,6-ST and alpha 2,6-linked sialoglycoconjugates. Among the different **meningioma** subtypes, **meningothelial meningiomas** stained more strongly with both anti-alpha 2,6-ST antibody and SNA than the fibroblastic and anaplastic **meningiomas**. On the other hand, all **tumors** of glial origin and medulloblastomas were virtually devoid of either alpha 2,6-ST or alpha 2,6-linked sialoglycoconjugate expression. Moreover, very weak to negligible expression of both alpha 2,6-ST and alpha 2,6-linked sialoglycoconjugates was observed in **brain** metastases. In conclusion, alpha 2,6-ST and alpha 2,6-linked sialoglycoconjugate expression is associated with non-neuroectodermal epithelial-like **tumors**.

L6 ANSWER 10 OF 17 SCISEARCH COPYRIGHT 2003 ISI (R)
AN 97:364493 SCISEARCH
TI alpha 2,3-sialyltransferase mRNA and alpha 2,3-linked glycoprotein sialylation are increased in malignant **gliomas**
SO BRAIN RESEARCH, (25 APR 1997) Vol. 755, No. 1, pp. 175-179.
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 0006-8993.
AU Yamamoto H; Saito T; Kaneko Y; Kersey D; Yong V W; Bremer E G; Mkrdichian E; Cerullo L; Leestma J; Moskal J R (Reprint)
AB CMP-NeuAc: Gal beta 1,3(4)GlcNAc alpha 2,3-sialyltransferase (alpha 2,3-ST) mRNA was expressed in human **glioma** specimens, human fetal astrocytes, and a panel of **brain tumor** cell lines. Maackia amurensis agglutinin staining revealed the presence of alpha 2,3-linked sialic acids on **glioma** cell surfaces and extracellular matrices whereas normal human adult astrocytes were negative. increased expression of alpha 2,3-linked glycoprotein sialylation may play a role in glial tumorigenesis.

L6 ANSWER 16 OF 17 MEDLINE
AN 2001456386 MEDLINE
TI Over-expression of beta-1,4-galactosyltransferase I, II, and V in human astrocytoma.
SO JOURNAL OF CANCER RESEARCH AND CLINICAL ONCOLOGY, (2001 Aug) 127 (8) 502-6.
Journal code: 7902060. ISSN: 0171-5216.
AU Xu S; Zhu X; Zhang S; Yin S; Zhou L; Chen C; Gu J
AB PURPOSE: beta-1,4-Galactosyltransferase (beta-1,4-GalT) I, II, and V are

the enzymes responsible for the biosynthesis of N-acetyllactosamine on N-glycans by transferring UDP-galactose to the terminal N-acetylglucosamine (N-GlcNAc) residues with the formation of a beta-1,4-linkage. **Neoplasms** undergo various changes in the carbohydrate of their glycoconjugates, indicating the possible changes in **glycosyltransferases** themselves. METHOD: Therefore, we compared the expression of beta-1,4-GalTs between astrocytoma and normal **brain** tissues. RESULTS: Our reverse-transcription polymerase chain reaction (RT-PCR) results showed that beta-1,4-GalT I transcript was absent in normal adult **brain** but detectable in grade II, III, and IV astrocytomas; the level of beta-1,4-GalT II transcript was increased in grade II, III, and IV astrocytomas while only a trace amount was found in normal **brain**; beta-1,4-GalT V transcript existed in normal **brain** and increased in the process of astrocytoma progress, with the highest level in grade IV astrocytoma. By Ricinus communis agglutinin-1 (RCA-1) lectin blot assay, we also found the more extensive galactosylated bands in astrocytomas compared with normal **brain**. A major 61kD protein was galactosylated in astrocytoma but not in normal **brain** tissues. CONCLUSION: These results indicate that the increase of galactosylation in astrocytomas may be caused by the alterations of gene expression of beta-1,4-GalT I, II, and V and that the malignant degree of astrocytoma is correlated with the expression of beta-1,4-GalT V.

=>

(FILE 'HOME' ENTERED AT 14:19:02 ON 21 FEB 2003)

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED AT 14:19:09 ON 21 FEB 2003

L1 14630 S SIALYLTRANSFERASE? OR GLYCOSYLTRANSFERASE?
L2 737 S (SIALYLTRANSFERASE? OR GLYCOSYLTRANSFERASE?) (L) (BRAIN OR U-
L3 535 S L2 AND PY<=1997
L4 535 FOCUS L3 1-
L5 39 S L4 AND (TRANSFECTED OR TRANSFORMED)
L6 15 DUP REM L5 (24 DUPLICATES REMOVED)
L7 15 SORT L6 PY

=> d an ti so au ab 10 14 15

L7 ANSWER 10 OF 15 CANCERLIT
AN 96653457 CANCERLIT
TI Galbeta1,4GlcNAc alpha2,6 **sialyltransferase** (alpha2,6-ST) gene transfection alters the integrin-mediated invasivity of the human **glioma** cell line **U-373MG** (Meeting abstract).
SO Proc Annu Meet Am Assoc Cancer Res, **(1996)** 37 A436. ISSN: 0197-016X.
AU Yamamoto H; Kaneko Y; Rebbaa A; Kersey D, Bremer E; Moskal J
AB The invasion of malignant **glioma** cells into normal **brain** tissue is a major cause of morbidity and death for **brain** tumor patients. Increases in cell-surface sialoglycoconjugates play an important role in carcinogenesis. We have examined the expression of alpha2,3-**sialyltransferase** (alpha2,3-ST) and alpha2,6-**sialyltransferase** (alpha2,6-ST) in human **brain** tumor specimens and found that the terminal sialylation of N-linked glycoproteins in **gliomas** appears to be mediated by alpha2,3-ST. We have altered the terminal sialylation of a tumorigenic human **glioma** cell line, **U-373MG**, by alpha2,6-ST gene transfection. The **transfected glioma** cells express alpha2,6-ST and alpha2,6-linked sialoglycoproteins on their cell surfaces and show a marked reduction in alpha3beta1 integrin-mediated adhesion to extracellular matrix proteins and in vitro invasiveness compared to controls. Furthermore, the alpha2,6-ST transfection results in a reduction of adhesion-mediated protein tyrosine phosphorylation despite a marked induction of the integrin-mediated signaling molecule, focal adhesion kinase, p125FAK. Thus, changes in the terminal sialylation can have a marked effect on alpha3beta1 integrin-mediated **glioma** invasivity and suggest an approach to alter the invasivity of **glioma** cells by **glycosyltransferase** gene transfections.

L7 ANSWER 14 OF 15 MEDLINE
AN 97309339 MEDLINE
TI alpha2,6-**Sialyltransferase** gene transfection into a human **glioma** cell line (U373 MG) results in decreased invasivity.
SO JOURNAL OF NEUROCHEMISTRY, **(1997 Jun)** 68 (6) 2566-76. Journal code: 2985190R. ISSN: 0022-3042.
AU Yamamoto H; Kaneko Y; Rebbaa A; Bremer E G; Moskal J R
AB **Glycosyltransferase** gene transfection into cell lines has been an approach used successfully to elucidate the functional role of cell surface glycoconjugates. We have **transfected** the rat CMP-NeuAc:Galbeta1,4GlcNAc alpha2,6-**sialyltransferase** (EC 2.4.99.1) gene into a human, tumorigenic, **glioma** cell line, U373 MG. This transfection led to a marked inhibition of invasivity, alterations in adhesivity to fibronectin and collagen matrices, and inappropriately sialylated alpha3beta1 integrin. Adhesion-mediated protein tyrosine phosphorylation was reduced in the transfectants despite increased expression of focal adhesion kinase, p125fak. Furthermore, the transfectants showed a distinct cell morphology, an increased number of focal adhesion sites, and different sensitivity to cytochalasin D treatment than control U373 MG cells. These results suggest that inappropriate sialylation of cell surface glycoconjugates, such as integrins, can change focal adhesion as well as adhesion-mediated signal transduction and block **glioma** cell invasivity in vitro.

L7 ANSWER 15 OF 15 SCISEARCH COPYRIGHT 2003 ISI (R)

AN 97:364483 SCISEARCH

TI alpha 2,3-**sialyltransferase** mRNA and alpha 2,3-linked glycoprctein sialylation are increased in malignant **gliomas**

SO BRAIN RESEARCH, (**25 APR 1997**) Vol. 755, No. 1, pp. 175-179.
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 0006-8993.

AU Yamamoto H; Saito T; Kaneko Y; Kersey D; Yong V W; Bremer E G; Mkrdichian E; Cerullo L; Leestma J; Moskal J R (Reprint)

AB CMP-NeuAc: Gal beta 1,3(4)GlcNAc alpha 2,3-**sialyltransferase** (alpha 2,3-ST) mRNA was expressed in human **glioma** specimens, human fetal astrocytes, and a panel of **brain** tumor cell lines. Maackia amurensis agglutinin staining revealed the presence of alpha 2,3-linked sialic acids on **glioma** cell surfaces and extracellular matrices whereas normal human adult astrocytes were negative. increased expression of alpha 2,3-linked glycoprotein sialylation may play a role in glial tumorigenesis.

=>

L7 ANSWER 11 OF 15 MEDLINE

AN 1998070745 MEDLINE

TI Expression cloning of cDNA encoding a human beta-1,3-N-acetylglucosaminyltransferase that is essential for poly-N-acetyllactosamine synthesis.

SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, **(1997 Dec 23)** 94 (26) 14294-9.
Journal code: 7505876. ISSN: 0027-8424.

AU Sasaki K; Kurata-Miura K; Ujita M; Angata K; Nakagawa S; Sekine S; Nishi T; Fukuda M

AB The structure and biosynthesis of poly-N-acetyllactosamine display a dramatic change during development and oncogenesis. Poly-N-acetyllactosamines are also modified by various carbohydrate residues, forming functional oligosaccharides such as sialyl Lex. Herein we describe the isolation and functional expression of a cDNA encoding beta-1,3-N-acetylglucosaminyltransferase (iGnT), an enzyme that is essential for the formation of poly-N-acetyllactosamine. For this expression cloning, Burkitt lymphoma Namalwa KJM-1 cells were **transfected** with cDNA libraries derived from human melanoma and colon carcinoma cells. **Transfected** Namalwa cells overexpressing the i antigen were continuously selected by fluorescence-activated cell sorting because introduced plasmids containing Epstein-Barr virus replication origin can be continuously amplified as episomes. Sibling selection of plasmids recovered after the third consecutive sorting resulted in a cDNA clone that directs the increased expression of i antigen on the cell surface. The deduced amino acid sequence indicates that this protein has a type II membrane protein topology found in almost all mammalian **glycosyltransferases** cloned to date. iGnT, however, differs in having the longest transmembrane domain among **glycosyltransferases** cloned so far. The iGnT transcript is highly expressed in fetal **brain** and kidney and adult **brain** but expressed ubiquitously in various adult tissues. The expression of the presumed catalytic domain as a fusion protein with the IgG binding domain of protein A enabled us to demonstrate that the cDNA encodes iGnT, the enzyme responsible for the formation of GlcNAcbeta1 --> 3Galbeta1 --> 4GlcNAc --> R structure and poly-N-acetyllactosamine extension.

L7 ANSWER 6 OF 15 MEDLINE
AN 92291086 MEDLINE
TI Expression cloning of beta 1,4 N-acetylgalactosaminyltransferase cDNAs that determine the expression of GM2 and GD2 gangliosides.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, **(1992 Jun 15)** 267 (17) 12082-9.
Journal code: 2985121R. ISSN: 0021-9258.
AU Nagata Y; Yamashiro S; Yodoi J; Lloyd K O; Shiku H; Furukawa K
AB GM2 and GD2 gangliosides are sialic acid-containing glycosphingolipids expressed in some normal tissues such as **brain** and in various tumors such as neuroblastomas, astrocytomas, and malignant melanomas. We used a eukaryotic cell transient expression system to isolate cDNA clones that determine GM2 expression. We developed a new cell line from murine melanoma line B16 by transfecting with the polyoma T antigen gene that was suitable for this purpose. Two cDNA clones, both of which have a continuous open reading frame of 1683 base pairs, were isolated. Although the cloned cDNAs had no primary sequence similarity to reported **glycosyltransferases**, the deduced amino acid sequence predicted a type II transmembrane protein with an overall structure similar to other **glycosyltransferases**. The cDNA clones, when stably **transfected**, determined the expression of GM2 in B16 cells and GM2 and GD2 in the human melanoma line MeWo. Northern blot analysis revealed two transcripts in all cells that expressed either GM2 or GD2 or both. These findings indicate that the cDNAs catalyze the transfer of GalNAc onto GM3 and GD3 by a beta 1,4 linkage, resulting in the synthesis of GM2 and GD2, respectively. Namely they suggest that these cDNAs derive from the UDP-GalNAc: GM3/GD3 beta 1,4 N-acetylgalactosaminyltransferase (EC 2.4.1.92) gene.

L7 ANSWER 8 OF 15 MEDLINE

AN 97137534 MEDLINE

TI The molecular cloning and expression of alpha 2,8-**sialyltransferase** (GD3 synthase) in a rat **brain**.

SO JOURNAL OF BIOCHEMISTRY, **(1996 Nov)** 120 (5) 1020-7.
Journal code: 0376600. ISSN: 0021-924X.

AU Watanabe Y; Nara K; Takahashi H; Nagai Y; Sanai Y

AB We have cloned the cDNA for a GD3 synthase (alpha-2,8-**sialyltransferase**, [EC 2.4.99.8]) from a rat embrycnic **brain** cDNA library. Mammalian cells **transfected** with the cloned cDNA expressed GD3 on the cell surface and showed GD3 synthase activity. The deduced protein (342 amino acid residues) was predicted to have a type II membrane topology containing the "sialyl motif" and was found to be 91% similar to its human homologue. Analysis of the acceptor specificity of GD3 synthase protein indicated that this enzyme catalyzed the biosynthesis of GT1a and GQ1b as well as GD3. Northern blot analyses showed that the GD3 synthase gene is preferentially transcribed in the **brain** and the spleen. The expression of GD3 synthase mRNA was developmentally regulated, with the highest level in the **brain** during embryonic days 15 to 18. In situ hybridization analyses demonstrated that the GD3 synthase is strongly expressed in the ventricular/subventricular zone of the embryonic rat **brain** and retina. In the adult rat, GD3 synthase mRNA was detected in the cerebral cortex, hippocampus, thalamus, and cerebellum. These studies show that the spatio- and stage-restricted expression of GD3 in the developing rat **brain** may be regulated in part by the level of GD3 synthase mRNA.

L7 ANSWER 7 OF 15 MEDLINE
AN 95352205 MEDLINE
TI Expression cloning of a human polysialyltransferase that forms the polysialylated neural cell adhesion molecule present in embryonic brain.
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, **(1995 Jul 18)** 92 (15) 7031-5.
Journal code: 7505876. ISSN: 0027-8424.
AU Nakayama J; Fukuda M N; Fredette B; Ranscht B; Fukuda M
AB Polysialic acid is a developmentally regulated posttranslational modification of the neural cell adhesion molecule (N-CAM). It has been suggested that this large anionic carbohydrate modulates the adhesive property of N-CAM, but the precise function of polysialic acid is not known. Here we describe the isolation and functional expression of a cDNA encoding a human polysialyltransferase. For this expression cloning, COS-1 cells were cotransfected with a human fetal **brain** cDNA library and a cDNA encoding human N-CAM. **Transfected** COS-1 cells were stained with a monoclonal antibody specific for polysialic acid and enriched by fluorescence-activated cell sorting. Sibling selection of recovered plasmids resulted in a cDNA clone that directs the expression of polysialic acid on the cell surface. The deduced amino acid sequence indicates that the polysialyltransferase shares a common sequence motif with other **sialyltransferases** cloned so far. The polysialyltransferase is, however, distinct by having two clusters of basic amino acids. The amount of the polysialyltransferase transcripts correlates well with the formation of polysialic acid in various human tissues, and is abundant in the fetal **brain** but not in the adult **brain**. Moreover, HeLa cells stably expressing polysialic acid and N-CAM promoted neurite outgrowth and sprouting. These results indicate that the cloned polysialyltransferase forms polysialylated, embryonic N-CAM, which is critical for plasticity of neural cells.

L3 ANSWER 1 OF 1 CANCERLIT
AN 96653457 CANCERLIT
DN 96653457
TI Galbeta1,4GlcNAc alpha2,6 **sialyltransferase** (alpha2,6-ST) gene transfection alters the integrin-mediated invasivity of the human glioma cell line **U-373MG** (Meeting abstract).
AU Yamamoto H; Kaneko Y; Rebbaa A; Kersey D; Bremer E; Moskal J
CS The Chicago Inst. for Neurosurgery and Neuroresearch, Chicago, IL 60614.
SO Proc Annu Meet Am Assoc Cancer Res, (1996) 37 A436.
ISSN: 0197-016X.
DT (MEETING ABSTRACTS)
LA English
FS Institute for Cell and Developmental Biology
EM 199609
ED Entered STN: 19970509
Last Updated on STN: 19970509
AB The invasion of malignant glioma cells into normal brain tissue is a major cause of morbidity and death for brain tumor patients. Increases in cell-surface sialoglycoconjugates play an important role in carcinogenesis. We have examined the expression of alpha2,3-**sialyltransferase** (alpha2,3-ST) and alpha2,6-**sialyltransferase** (alpha2,6-ST) in human brain tumor specimens and found that the terminal **sialylation** of N-linked glycoproteins in gliomas appears to be mediated by alpha2,3-ST. We have altered the terminal **sialylation** of a tumorigenic human glioma cell line, **U-373MG**, by alpha2,6-ST gene transfection. The transfected glioma cells express alpha2,6-ST and alpha2,6-linked sialoglycoproteins on their cell surfaces and show a marked reduction in alpha3beta1 integrin-mediated adhesion to extracellular matrix proteins and in vitro invasiveness compared to controls. Furthermore, the alpha2,6-ST transfection results in a reduction of adhesion-mediated protein tyrosine phosphorylation despite a marked induction of the integrin-mediated signaling molecule, focal adhesion kinase, p125FAK. Thus, changes in the terminal **sialylation** can have a marked effect on alpha3beta1 integrin-mediated glioma invasivity and suggest an approach to alter the invasivity of glioma cells by glycosyltransferase gene transfections.
CN EC 2.4.99.- (**Sialyltransferases**); 0 (Integrins)

L4 ANSWER 3 OF 535 CAPLUS COPYRIGHT 2003 ACS
AN 1996:659409 CAPLUS
DN 125:294760
TI Sia .alpha. 2,3Gal .beta. 1,4GlcNAc .alpha. 2,8-**sialyltransferase** of mouse **brain**, cDNA sequence, and fusion product recombinant production
SO Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
IN Tsuji, Shuichi; Yoshida, Yukiko; Kojima, Naoya; Kurosawa, Nobuyuki; Hamamoto, Toshiro
AB The subject invention provides Sia .alpha. 2,3Gal .beta. 1,2GlcNAc .alpha. 2,8-sialyltransferase and an enzymically active fragment thereof, and a nucleotide sequence encoding said sialyltransferase. The subject invention also provides an extracellularly releasable protein capable of catalyzing Sia .alpha. 2,3 Gal .beta. 1,4GlcNAc A2,8-sialyl-transfer which comprises the enzymically active fragment of the Sia .alpha. 2,3 Gal .beta. 1,4GlcNAc .alpha. 2,8-sialyltransferase together with a signal peptide.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 736602	A2	19961009	EP 1996-105267	19960402 <--
	EP 736602	A3	19990714		
	R: CH, DE, FR, GB, LI				
	JP 08266284	A2	19961015	JP 1995-77469	19950403 <--
	US 5798244	A	19980825	US 1996-626994	19960403
	US 6017743	A	20000125	US 1997-957742	19971024